Ocean and Coastal Law Journal

Volume 23 | Number 1 Article 6

January 2018

American Lobster Claws Threatened by Eu Invasive Species Laws:How the Eu Invasive Species Act Applies Non-Uniformly to Aquatic Species.

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AMERICAN LOBSTER CLAWS THREATENED BY EU INVASIVE SPECIES LAWS: HOW THE EU INVASIVE SPECIES ACT APPLIES NON-UNIFORMLY TO AQUATIC SPECIES.

By Joseph D. Foltz

ABSTRACT

In 2014 the European Union enacted the "Prevention and Management of the Introduction and Spread of Invasive Alien Species Act" (Act) as a way to restrict the transportation and consumption of non-native animal and plant species that harmed native animal and plant species. As a result of this Act, thirty-seven species were deemed "invasive alien species" and were placed on a "list of Union concern" which restricted their importation and movement within the EU. Two species on this list include the Virile Crayfish (*Orconectes virilis*) and the Pond Slider (*Trachemys scripta*).

On February 29, 2016, Sweden (a European Union member) petitioned the European Union to add the American Lobster (*Homarus americanus*) onto the list of Union concern through the statutory mechanisms provided within the Act. This would have been done by examining a scientific risk assessment completed by Sweden, which detailed the environmental harms the American Lobster caused on native species and habitat, and determine whether these harms met the requirements under the Act that would allow the European Union to place the American Lobster on the list of Union concern. However, before this determination was completed, the European Union, due to political pressure from other European Union countries whom import many tons of American Lobsters for consumption, halted this process and the American Lobster was spared from being placed on the list of Union concern.

This comment analyzes the Act and the risk assessment created by Sweden, and it concludes the American Lobster did not meet the requirements under the Act that would allow the European

Union to place the species in the list of Union concern. However, the European Union should have made this determination through the framework of the Act and not through political pressure. Moreover, this comment analyzes the risk assessments of the Pond Slider and the Virile Crayfish and determines that the European Union does not uniformly apply the Act's criteria to all species on the list of Union concern; the European Union added a species onto the list of Union concern that did not meet all the criteria within the Act.

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I. INTRODUCTION

Estimates state that there are over 12,000 alien species in the European Union (EU) and around ten to fifteen percent of these species are deemed invasive.[1] These species harm the local ecosystems by outcompeting with native species for limited habitat and food, inter-breeding with native species, and introducing exotic diseases to the native species.[2] Moreover, these species also cause significant economic damage to the EU nations by lowering yields from agriculture, forestry, and fishing.[3] Invasive species can also damage infrastructure by clogging water pipes and decreasing water availability.[4] It is estimated that, over the past twenty years, invasive alien species have cost the EU an average of €12 billion a year, or $13.3 billion a year.[5]

This article will examine how the EU tried to mitigate the damages caused by invasive alien species, mainly through the 2014 EU law called the Prevention and Management of the Introduction and Spread of Invasive Alien Species Act, and how this law is applied to alien aquatic species through case studies of the American Lobster, Pond Slider, and Virile Crayfish. While the EU crafted a law with extensive and detailed qualifications for an alien species to be deemed "invasive," the EU does not apply the law uniformly to aquatic species; this will be

[1] European Commission, *Invasive Alien Species: A European Union Response*, 5 (2014) [http://perma.cc/RQ9X-FTMF].

[2] *Id.* at 9

[3] *Id.*

[4] *Id.*

[5] *Id.* at 11.

demonstrated by an analysis of the three aquatic species, mentioned above, through the framework of the law.

II. THE EU INVASIVE ALIEN SPECIES ACT

To tackle the environmental and economic cost associated with invasive alien species, on October 22, 2014, the EU enacted the "Prevention and Management of the Introduction and Spread of Invasive Alien Species Act" (Invasive Alien Species Act).[6] Acknowledging that the number of invasive alien species in the EU number in thousands, the Invasive Alien Species Act directs the managers of the legislation to focus on regulating and controlling invasive species that are of "Union concern" by creating a list of species that should have top priority.[7] The list of Union concern would include species nominated by both the European Commission (Commission) and by member EU states.[8] For the Commission to add a species on to the list, it must satisfy all criteria set out in Article 4(3) of the law.[9] Part of requirements laid out in Article

[6] Council Regulation 1143/2014, On The Prevention and Management of The Introduction and Spread of Invasive Alien Species, 2014 O.J. (L 317) 35 [hereinafter "Invasive Alien Species Act"].

[7] *Id.* at 36. This list of invasive alien species created by the European Commission will be referred to as "the list of Union concern."

[8] *Id.* art. 4 at 42.

[9] For a species to be added on to the list of Union concern, the scientific evidence must show "(a) they are found, based on available scientific evidence, to be alien to the territory of the Union excluding the outermost regions; (b) they are found, based on available scientific evidence, to be capable of establishing

4(3) is there has to be a risk assessment completed involving the species in question to determine that "action at Union Level is required to prevent [the species'] introduction, establishment or spread."[10]

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a viable population and spreading in the environment under current conditions and in foreseeable climate change conditions in one biogeographical region shared by more than two Member States or one marine subregion excluding their outermost regions; (c) they are, based on available scientific evidence, likely to have a significant adverse impact on biodiversity or the related ecosystem services, and may also have an adverse impact on human health or the economy; (d) it is demonstrated by a risk assessment carried out pursuant to Article 5(1) that concerted action at Union level is required to prevent their introduction, establishment or spread, [and]; (e) it is likely that the inclusion on the [list of Union concern] will effectively prevent, minimi[z]e or mitigate their adverse impact." *Id*. art. 4(3) at 42.

[10] *Id*. at art. 4(3)(d) at 42. The risk assessment has eight elements, which include: "(a) a description of the species with its taxonomic identity, its history, and its natural and potential range; (b) a description of its reproduction and spread patterns and dynamics including an assessment of whether the environmental conditions necessary for its reproduction and spread exist; (c) a description of the potential pathways of introduction and spread of the species, both intentional and unintentional, including where relevant the commodities with which the species is generally associated; (d) a thorough assessment of the risk of introduction, establishment and spread in relevant biogeographical regions in current conditions and in foreseeable climate change conditions; (e) a description of the current distribution of the species, including whether the species is already present in the Union or in neighboring countries, and a projection of its likely future distribution; (f) a description of the adverse impact on biodiversity and related ecosystem services, including on native species, protected sites, endangered habitats, as well as on human health, safety, and the economy including an assessment of the potential future impact having regard to available scientific knowledge; (g) an assessment of the potential costs of damage; [and] (h) a description

If, after the risk assessment, a species has been deemed an invasive alien species, the Act puts tight restrictions on the species. Under the Act, an invasive alien species cannot be kept, bred, sold, or be permitted to reproduce, or released within EU territory.[11] Moreover, an invasive alien species cannot be brought intentionally into any EU states, even during transit under customs supervision.[12] These restrictions effectively prohibit any species on the list of Union concern from the EU.

III. THE LIST OF UNION CONCERN

On July 16, 2016, the Commission released their original list of invasive alien species of Union concern.[13] The list contained thirty-seven species; this included fourteen plant species and twenty-three animal species.[14] Aquatic species on this list include the *Orconectes virilis,* (Virile Crayfish) and the *Trachemys scripta*, (Pond Slider).[15] As noted earlier, for a species to be deemed an invasive alien species, it must have gone through a risk assessment outlined in Article

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of the known uses for the species and social and economic benefits deriving from those uses." *Id*. art. 5(1) at 43.

[11] *Id.* at art. 6(1) at 44.

[12] *Id*.

[13] Commission Implementing Regulation 2016/1141 Adopting a List of Invasive Alien Species of Union Concern Pursuant to Regulation (EU) No 1143/2014 of the European Parliament and of the Council, 2016 O.J. (L 189) 4 [hereinafter "the list of Union concern"].

[14] Ryan O'Hare, *Skunk Cabbages, Raccoons and Bullfrogs Make the List of 37 Invasive Species Banned from the UK*, THE DAILY MAIL (Aug. 4, 2016), available at https://perma.cc/H923-27MR..

[15] The list of Union concern, *supra* note 13, annex at 6.

5.[16] Here are the key points from the Virile Crayfish and the Pond Slider's risk assessment, through the framework of Article 5 of the Invasive Alien Species Act.

A. Virile Crayfish

The Virile Crayfish is a freshwater crayfish native to the eastern part of the United States and has spread to western parts of the United States, Canada, and Mexico.[17] It has only been found in the EU states of Great Britain and the Netherlands.[18] Though the list for invasive species of Union concern was compiled from 2015-16, the risk assessment the EU used came from a 2013 assessment done by the British organization, Non-Native Species Risk Analysis Panel.[19] In the assessment, it stated the Virile Crayfish had only become established in one site in the Netherlands and the River Lee in Great Britain.[20] However, also according to the assessment, the Virile Crayfish has the ability to adapt to European waterways that are similar to American waterways.[21]

The assessment described the current and potential pathways the Virile Crayfish could use in order to find its way into EU waters. It determined that the original pathway for the

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[16] Invasive Alien Species Act, *supra* note 6, art. 5 at 43.

[17] *Orconectes virilis (virile crayfish)*, CTR. AGRIC. & BIOSCI., https://perma.cc/7QRZ-SQG8 (last visited Oct. 7, 2016).

[18] *Id.*

[19]David Rogers & Elizabeth Watson, *GB Non-native Organism Risk Assessment for* Orconectes virilis, (2013) https://perma.cc/UEZ9-P3QU. [hereinafter "Virile Crayfish Risk Assessment"].

[20] *Id.* at § 33.

[21] *Id.*

crayfish occurred through the aquarium trade; a local resident near the River Lee disposed of his aquarium stock of the crayfish into the river and the original stock established a permanent colony and reproduced.[22] It is estimated that the dispersal rate from the original point of introduction is about two kilometers per year.[23]

Despite the conflicting data in the assessment, the Commission determined the Virile Crayfish is an invasive alien species of Union concern. Although the current pathways into the EU member's ecosystem were very small and caused negligible economic and environmental damage, the Commission, nonetheless, felt the potential damage done by the Virile Crayfish warranted its inclusion on the list. As a result, it is subject to the restrictions found in Article 7 of the Act.[24]

B. Pond Slider

Another species on the list of Union concern is the Pond Slider, which is commonly known as a turtle.[25] The risk assessment was completed on June 30, 2015.[26] The native range for

[22] *Id.* at § 23.

[23] *Id.* at § 44.

[24] *See* Invasive Alien Species Act, *supra* note 6, art. 7 at 44.

[25] List of Union concern, *supra* note 13, annex at 6.

[26] Deputy Direction of Nature (Spanish Ministry of Agriculture, Food and Environment), *EU Non-Native Risk Assessment Scheme for Trachemys scripta* (*Pond Slider*) 1 (2015) [Hereinafter "Pond Slider Risk Assessment"].

the Pond Slider is mostly in the Southern United States with some spattering in the Midwest.[27] Unlike the Virile Crayfish, the Pond Slider had been documented in multiple EU states.[28] The pathway for the Pond Slider is through the commercial market as a household pet.[29] Globally, the Pond Slider trade involves around 6 million turtles.[30] After being sold to consumers as pets, some owners of the Pond Sliders released them into the wild.[31] What makes the establishment of Pond Slider colonies so common in the EU, and especially in Southern EU states, is the similar climate of Southern United States and Southern Europe.[32]

The establishment of Pond Sliders in the EU has been devastating to the native population of turtles within the EU. The Pond Sliders carry parasites that are deadly to native Mediterranean Turtle (*M. leprosa*).[33] Moreover, the Pond Sliders have the potential to

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[27] Louis A. Somma et al., *Trachemys scripta (Pond Slider),* U.S. GEOLOGICAL SURV., (Oct. 28, 2009)https://perma.cc/SS9K-UH6C.

[28] As of the conclusion of the assessment states, there are Pond Slider populations in the following EU countries: France, Greece, Italy, Germany, Latvia, Poland, Portugal, Slovenia and Spain. Pond Slider Risk Assessment *supra* note 26, at 3.

[29] *Id.* at 14.

[30] *Id.*

[31] *Id.* at 15.

[32] *See id.,* at 9.

[33] *Id.* at 37.

outcompete with native turtles.[34] They may also destroy local fauna through consumption.[35] The main economic detriment from the Pond Slider comes from the management and control implemented due to its invasion in the EU.[36] Spain and Portugal have caught 23,000 Pond Sliders since they have attempted to control the population.[37] However, the potential risk to fish stocks or to waterway pollution was too small to measure by the assessment.[38] As a result of the widespread establishment of colonies of Pond Sliders and the harm the species cause on native turtles and the environment, the Commission placed it on the list of invasive alien species of Union concern. Because of this, Pond Sliders cannot be sold or brought into the EU.[39]

While both the Pond Slider and the Virile Crayfish are on the invasive alien species list, each found their way on the list with different characteristics. Under the Invasive Alien Species Act risk assessment framework, both the Virile Crayfish and the Pond Slider's pathway into the EU involved their owners discarding them into local waterways. While the Pond Slider's damage to the environment was more widespread and current, the Commission, nonetheless, felt the Virile Crayfish's potential environmental damage was substantial enough to include it on the list. Both had the potential to outcompete with native species for food and habitat. For these reasons, the Commission placed these two species on the list.

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[34] *Id.*

[35] *Id.* at 42.

[36] *Id*. at 36.

[37] *Id.*

[38] *Id.*

[39] *See* Invasive Alien Species Act, *supra*, note 6, art. 7, at 44.

IV. THE TALE OF THE AMERICAN LOBSTER AND THE INVASIVE ALIEN SPECIES ACT

As mentioned above, the original list of invasive alien species of Union concern listed thirty-seven species.[40] However, EU countries can petition the Commission to add additional species to the list. The petition must include the name of the species and a risk assessment as defined in Article 5.[41]

A. Sweden's petition to add the American Lobster to the Invasive Alien Species List

On February 29, 2016. Sweden petitioned the EU to add the species *Homarus americanus* (American Lobster) to the list of Union Concern.[42] Sweden petitioned the Commission because it had claimed to have found more than thirty American Lobsters off of its coast over the past several years.[43] Sweden contended American Lobsters off of its coasts

[40] *See* List of Union concern, *supra* note 13, annex at 6.

[41] Invasive Alien Species Act, *supra* note 6, art. 4(4), at 42.

[42] *Request from Sweden, according to article 4.4, Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species, to include American lobster (Homarus americanus) on the Union list*, at 1, (Feb. 29, 2016), *available at* http://perma.cc/X2CJ-3YCZ.

[43] Associated Press, *EU forum to take stance on Sweden's call for lobster ban*, BUS. INSIDER (Aug 29, 2016), http://www.businessinsider.com/ap-eu-forum-to-take-stance-on-swedens-call-for-lobster-ban-2016-8.

negatively impacted its native European Lobsters (*Homarus gammarus*) by outcompeting with the European Lobsters and crossbreeding with one another.[44]

In September 2016, after examining Sweden's proposal, the Commission determined Sweden's risk assessment contained sufficient information to move forward with a full assessment done by the Commission.[45] The Commission estimated that a full assessment by the Commission would take close to a year to complete.[46] In the next month, however, the Commission reversed course and stated it would not prohibit American Lobsters into the European Union.[47] This reversal occurred due to political pressure from southern European nations whom export large amounts of American Lobsters for consumption.[48]

B. The American Lobster's Risk Assessment

While the EU ultimately chose to not pursue restrictions on the American Lobster, through Article 7 of the Invasive Alien Species Act, would the American Lobster meet the requirements of an invasive alien species, as stated in Article 4(3)? The assessment done by the Swedes, can help determine whether the EU's outcome would be the same through Article 4(3) of the Invasive Alien Species Act as what the EU did. Along with the request for the EU to

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[44] Penelope Overton, *Sweden's proposed ban on American lobsters clears first hurdle*, PORTLAND PRESS HERALD (Sep. 6 2016), available at https://perma.cc/5TGZ-AXZJ.

[45] *Id.*

[46] *Id.*

[47] Fred Bever, *Maine Lobster Wins Reprieve from Proposed EU Ban*, MPBN (Oct. 14, 2016), available at [https://perma.cc/BSL9-5ANV].

[48] *Id.*

declare the American Lobster an invasive alien species, the Swedish government also included their own risk assessment.[49] This is required in the Invasive Alien Species Act.[50] The assessment first gave background information of the American Lobster, and its natural habitat.[51] The assessment then discussed the potential pathways American Lobsters might enter into the EU, which is required under Article 5(1)(c). The assessment stated that, while there are few pathways for the American Lobster to gain access into European waters,[52] the pathways available could potentially lead to a significant amount of American Lobsters into European waters.[53] The United States exported over 8,600 metric tons of American Lobsters to the EU in 2014, including 182 metric tons to Sweden.[54] While the assessment claims escaped American Lobsters have an ability to survive in the pathway of European waters, the assessment states a very small percentage of American Lobsters imported into the EU escape containment during shipping and

[49] Swedish Agency for Marine and Water Management, *Risk Assessment of the American Lobster (Homarus americanus)* 5-6 (2016) [https://perma.cc/WK9W-PHUA] [hereinafter "American Lobster Risk Assessment"].

[50] *See* Invasive Alien Species Act, *supra* note 6, art. 4(3) at 42.

[51] American Lobster Risk Assessment, *supra* note 49, at 15.

[52] The most common pathway for American Lobsters into EU waters involved the accidental loss of American Lobsters by shipping containers for export into the EU, along with more infrequent intentional placing of lobsters into EU waters by animal activists and other individuals. *Id.* at 34.

[53] *Id.* at 35.

[54] *Id*. at 36.

selling.[55] Despite this, the risk assessment concluded that it was a "likely" risk that American Lobsters may enter EU waters through this pathway.[56]

The risk assessment proceeded to discuss if the American Lobster was well established in European waters and the likelihood it could establish a presence in the future.[57] The assessment concluded that it was unlikely the American Lobster was already established in European waters, but it was very likely the American Lobster could establish a presence in European waters.[58] This is due to the similarity between the American and European Atlantic Coast.[59] The assessment further stated that while there is no evidence of the American Lobster becoming well established in other habitats other than off the Atlantic Coast, the American Lobster has characteristics often associated with invasiveness; such characteristics are: aggressiveness, adaptability and the ability to undertake long distance migrations.[60] Finally, while attempts to establish American Lobsters in other parts of the world did not yield results, the assessment concluded that did not mean the American Lobster could not establish in European waters.[61]

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[55] *Id.* at 39.

[56] *Id.* at 40.

[57] A species' ability to establish in an alien environment is required under Article 4(3)(b) of the Invasive Alien Species Act. *See* Invasive Alien Species Act, *supra* note 6, art. 4(3)(b) at 42.

[58] American Lobster Risk Assessment, *supra* note 49, at 41.

[59] *Id.* at. 42.

[60] *Id.* at 45-6.

[61] *Id.* at 47.

Moving on to the issue of the spread of the American Lobster in European waters, the assessment stated if the American Lobster became well established in Atlantic European waters, it had the ability to spread to just eleven to thirty-three percent of that body of water.[62] Further, the assessment stated the main current cause of the spread of the American Lobster was by human interference, and not by natural reproduction.[63] Finally, the assessment estimated that, in five years from the end of the assessment, the American Lobster would have invaded just zero to ten percent of Atlantic European waters.[64]

The risk assessment continued to the economic cost of the American Lobster in EU waters, which continued the theme within the assessment that there is no current harm caused by the American Lobster now, but there might be potential damage in the future. The assessment stated the economic loss in areas where other countries had attempted to transplant the American Lobster, such as Japan and Italy, resulted in a minimal economic loss to fisheries or environmental cleanup.[65] The assessment, however, suggested the potential economic cost for the EU could be significant because of the potential for the American Lobster to outcompete and cross-breed with the native European Lobster.[66] The assessment further states the cost to manage the American Lobster, if it becomes well established, may be significant; however, the

[62] *Id.* at 49.

[63] *Id.* at 50.

[64] *Id.* at 51.

[65] *Id.* at 53.

[66] *Id.* at 53-4.

assessment found it difficult to be definitive on the matter due to the speculative nature of the scenario.[67]

Finally, the assessment described the current and potential environmental damage the American Lobster caused in both European waters and elsewhere. The assessment stated in instances where countries attempted to establish an American Lobster colony, the long term effects caused minor environmental harm.[68] Moreover, the assessment also stated American Lobsters *have not* caused major damage in European waters, such as hybrid European and American Lobsters or any established American Lobster populations outcompeting with European Lobsters.[69]

However, as with other components of the assessment, it stated the American Lobster may have a major influence on the biodiversity and ecosystem of European waters.[70] American Lobsters carry pathogens that could potentially harm local marine life, including the European Lobster.[71] Moreover, potential cross-breeding between American and European Lobsters could threaten the genetic integrity of the European Lobster.[72] Finally the Assessment stated the

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[67] *Id.* at 56.

[68] For example, in the 1980's, Japan attempted to establish an American Lobster population. However, there was no subsequent research to see if the American Lobster did establish in the Japanese waters. *Id.* at 56-7.

[69] *Id.* at 57.

[70] *Id.* at 57-8.

[71] *Id*. at 57.

[72] *Id.* at 58.

potential environmental impacts would have little negative impact on humans because American Lobsters diseased with pathogens are easily detectable and would normally not be consumed by humans.[73]

C. The American Lobster within the Invasive Alien Species Act Framework

After examining the criteria for a species to be added on EU's live of invasive alien species of Union concern, as well as the risk assessments from the American Lobster, Virile Crayfish, and the Pond Slider, the EU ultimately came to the proper result by not adding the American Lobster to the list. As noted above, Article 4(3) of the Invasive Alien Species Act lists five criteria for a species to be added to the list.[74] A species must meet *all* criteria for it to be deemed invasive and put on the list.[75] The American Lobster has not meet all five criteria under Article 4(3) of the Invasive Alien Species Act, and, therefore, should not be included on the list of Union concern.

1. Article 4(3)(a)

The first criterion is the species "are found based on available scientific evidence, to be alien to the territory of the Union excluding the outermost regions."[76] Sweden's Atlantic Ocean

[73] *Id.* at 60.

[74] *See* Invasive Alien Species Act, *supra* note 6, art. 4(3) at 42.

[75] *Id.*

[76] *Id*., art. 4(3)(a) at 42.

is not covered by the term "outermost region."[77] Any American Lobster found in Sweden's Atlantic Ocean is alien because the native habitat of American Lobster is off the coast of Atlantic Canada and the upper half of the east coast of the United States.[78] Therefore, Article 4(3)(a) is satisfied when Swedish officials found over thirty American Lobsters off of its coast, over the last several years.

2. Article 4(3)(b)

The next criterion is determining whether the species is "based on scientific evidence, to be capable of establishing a viable population and spreading in the environment under current conditions and in foreseeable climate change conditions in one biogeographical region shared by more than two Member States or one marine subregion excluding the outermost regions."[79] The North-East Atlantic Ocean is defined by the EU as a "marine subregion."[80] The assessment states it is very likely for an American Lobster to establish a population in the European Atlantic

[77] The term "outermost region" refers to nine territories outside of continental Europe that are, nonetheless, apart of EU, such as the French Overseas Departments of Martinique and Mayotte. EUROPEAN COMMISSION, *Regional Policy & Outermost Regions*, [https://perma.cc/9XXD-FYGB] (last visited Dec. 1, 2016).

[78] American Lobster Risk Assessment, *supra* note 49, at 17.

[79] Invasive Alien Species Act, *supra* note 6, art. 4(3)(b) at 42.

[80] Directive 2008/56/EC of the European Parliament and of the Council, Establishing a Framework for Community Action in The Field of Marine Environmental Policy (Marine Strategy Framework Directive), 2008 O.J. (164) 19, 26.

Ocean because of the similarities between the European and North American Atlantic Ocean.[81] The habitat for the American Lobster is quite similar to the habitat for the European Lobster, meaning the American Lobster could easily establish in the European Atlantic Ocean.[82]

To satisfy this criterion, the species must also be capable of spreading "under current conditions and in foreseeable climate change conditions."[83] The assessment is less conclusive about the ability for the American Lobster to spread in European Atlantic waters. The assessment stated the American Lobster could spread to only about 10-33% of European Atlantic waters and this estimation was done with a "low" confidence.[84] Further, the assessment speculated spread of American Lobsters in European waters would be a slow process, despite its ability to travel long distances.[85] In fact, the assessment concluded that out of the 10-33% of European Atlantic waters that are suitable for establishment by the American Lobster, it has spread to only 0-10% of that water suitable for establishment.[86] This means the assessment estimates the American Lobster is, at most, in 3.3% of the European Atlantic Ocean, and could possibly be in none of the ocean. The assessment, further concludes that, in five years, the spread percentage would stay the same at 0-10%.[87] Although the risk assessment concluded the American Lobster can only establish and

[81] American Lobster Risk Assessment, *supra* note 49, at 47.

[82] *Id.* at 42.

[83] Invasive Alien Species Act, *supra* note 6, art. 4(3)(b) at 42.

[84] American Lobster Risk Assessment, *supra* note 49, at 49.

[85] *Id.*

[86] *Id.* at 51.

[87] *Id.*

spread to, at most, 3.3% of the European Atlantic Ocean, it is still capable of establishing and spreading. The 3.3% is enough to satisfy Article 4(3)(b) of the Invasive Alien Species Act.

3. Article 4(3)(c)

While the first two criteria of Article 4(3) may have been satisfied, Article 4(3)(c) proves to be much more difficult. Article 4(3)(c)'s criterion must show the species "likely to have a significant adverse impact on biodiversity or the related ecosystem services, and may also have an adverse impact on human health or the economy."[88] The current economic loss is minor, according to the assessment, and while it states there could be major economic loss in the future involving European Lobsters, this is based on the assumption the American Lobster establishes and spreads.[89] The adverse impact on human health is minimal due to the fact that diseased lobsters are discarded upon inspection during the lobster trade, resulting in negligible instances of humans consuming diseased lobsters.[90]

As for any adverse effects the American Lobster has on the biodiversity or the ecosystem of the European Atlantic Ocean, the assessment states the American Lobster only causes a minor impact on these two aspects.[91] However, the assessment then goes on to suggest the American Lobster may have a major effect on the biodiversity and the ecosystem in the future.[92] The assessment stated the American Lobster may invade the habitat of the European Lobster and

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[88] Invasive Alien Species Act, *supra* note 6, art. 4(3)(c) at 42.

[89] American Lobster Risk Assessment, *supra* note 49, at 53-4.

[90] *Id.* at 60.

[91] *Id.* at 57-8.

[92] *Id.*

other decapods in the area.[93] However, even the predictions were inconclusive because, according to the assessment, "how an invasive alien species behaves outside of its natural range is not always predictable due to the release and/or changes in pressures, the state of the population and environmental differences."[94] The assessment also stated that hybridization may negatively impact European Lobsters with an increased risk of disease and decreased population of pure-bread European Lobsters.[95]

After close examination of the American Lobster's risk assessment, in conjunction with Article 4(3)(c), the American Lobster does not meet the requirements of the law. First, the assessment stated the current effect the American Lobster has on the biodiversity and ecosystem of the European Atlantic Ocean is "minor."[96] This is well below the statutory standard of Article 4(3)(c) that the species is "*likely* to have a *significant* adverse impact" on the ecosystem or biodiversity of the European Atlantic Ocean.[97] Second, even though the risk assessment states there *might* be future biodiversity or ecosystem damage caused by the American Lobster, in the future, the risk assessment does not state this with high confidence.[98] Finally, the assessment cannot say the American Lobster has a significant adverse impact on the human health or the

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[93] *Id.*

[94] *Id.* at 57.

[95] *Id.* at 58-9.

[96] *Id.* at 57-8.

[97] *See* Invasive Alien Species Act, *supra* note 6, art. 4(3)(c) at 42 (emphasis added).

[98] The risk assessment concludes, with medium confidence, that the American Lobster may cause major damage to the ecosystem and biodiversity. American Lobster Risk Assessment, *supra* note 49, at 57-8.

economy of the area.[99] Because the American Lobster cannot satisfy the criterion in Article 4(3)(c), it cannot satisfy all five requirements in Article 4(3) and thus cannot be deemed an invasive alien species under the Act.

4. Article 4(3)(d)

Even if one assumed the American Lobster met the standard in Article 4(3)(c), the species would further fail to meet the criteria in Article 4(3)(d). In that part of law, it states a species will only be put on the list of Union concern if "it is demonstrated by a risk assessment carried out pursuant to Article 5(1) that concerted action at Union level is required to prevent their introduction, establishment or spread."[100] From Sweden's risk assessment on the American Lobster, the assessment predicts the American Lobster may impact the economic, environmental, and social makeup of several EU nations because these nations are coastal nations with rock and gravel bottoms that go below 500 meters in its territorial waters.[101] However, evidence that American Lobster had established in these nations are slim.

For example, during the 1970's, France released juvenile American Lobsters into their waters to see if the juveniles could add to the native stock.[102] However, since when France intentionally released the juvenile American Lobsters into their waters, the assessment could

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[99] *Id*. at 53-4.

[100] Invasive Alien Species Act, *supra* note 6, art. 4(3)(d) at 42.

[101] The EU nations that are included in this list are Sweden, Denmark, Germany, the Netherlands, Belgium, Great Britain, Ireland, France, Spain, and Portugal. American Lobster Risk Assessment, *supra* note 49, at 64.

[102] *Id.* at 18

only highlight one instance, in 2003, when it found an American Lobster off of its coast.[103] France is a nation that, from 2005 to 2014, imported more than 5,000 metric tons of American Lobster from Canada and more than 18,000 metric tons of American Lobster from the United States.[104] In the 11 years that proceeded the 2003 report of an American Lobster in French waters, the assessment could not find a similar incident. This absence of a similar incident occurred in the same time frame where France imported more than 23,000 metric tons of American Lobster.

Would placing American Lobsters on the list of Union concern, which would ban the importation of American Lobsters into France, really help prevent their introduction, establishment or spread into the European Union? Since the discovery of an American Lobster, in 2003, France has had over 23,000 metric tons of the species imported into its borders and not once had an incident where an American Lobster was found in French waters. None of these 23,000 metric tons of American Lobster have been the catalyst for the introduction, establishment or spread of the American Lobster in the European Union. Banning France from importing American Lobsters has no impact on the introduction, establishment or spread of American Lobster in Sweden because France has had a great amount of American Lobsters imported into its county and scientists have not found an American Lobster in France since 2003.[105]

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[103] *Id.* at 30.

[104] *Id.* at 36-7.

[105] *Id.* at 30.

Moreover, the Article 5(1) risk assessment, required in Article 4(3)(d), lists one of its elements to factor into the decision is "a description of the known uses for the species and social and economic benefits deriving from those uses."[106] The risk assessment suggests that for Sweden, a country that imported over 200 metric tons of American Lobster from the United States and other European nations, there are around 30-40 jobs that are directly linked to the importation of American Lobsters into Sweden, as well as countless other jobs that are related to the distribution and use of American Lobsters.[107] The assessment further claims the losses in jobs and revenue may be offset by the increased demand of European Lobster.[108] However, in 2006, the European Lobster accounted for just two percent of the global lobster trade, while the American Lobster accounted for fifty-four percent of the global lobster trade.[109] While these figures are for the global market, it still demonstrates the wide disparity between the American and European lobster industry, and the huge gap the European Lobster market would have to close to ensure other European countries satisfied its demand for lobster. In 2014, the European

[106] Invasive Alien Species Act, *supra* note 6, art. 5(1)(h) at 43.

[107] The assessment listed jobs that are directly related to the importation of American Lobsters into Sweden as loading and transportation from airport, preparation of documentation, veterinary control and customs inspection and jobs that are indirectly related to the importation of American Lobsters into Sweden as jobs in restaurants, event businesses, fish dealers, and shops. American Lobster Risk Assessment, *supra* note 49, at 88.

[108] *Id.*

[109] Trade Adjustment Assistance for Farmers, *Lobster Market Overview* 11, https://perma.cc/8KTR-8A9P.

Union imported over 8,500 metric tons of American Lobster just from the United States.[110] The European Lobster market will not be an acceptable substitution to replace the demand for the American Lobster in the European Union.

Further, if the estimated number of jobs effected by the ban of American Lobsters in Sweden is extrapolated for other European nations, the negative economic effect is more clear. As stated before, the assessment estimates that, in Sweden, 30 to 40 jobs would be directly impacted by a EU ban on American Lobsters.[111] In 2014, Sweden imported just under 300 metric tons of American Lobster from Canada, the United States, and other European nations.[112] If the importation of 300 metric tons of American Lobster into Sweden needs, at minimum, 30 jobs to make that happen, it can be estimated that just 10 tons of American Lobster effects one of these jobs.[113] For a European nation, such as France, that imported roughly 2,170 metric tons of American Lobster in 2014, it can be estimated that around 217 would be effected in France by the EU banning American Lobster.[114] While it can be argued that some of these jobs will not be completely lost because they also deal with the importation of other goods, there still will be a reduction in volume of imported goods for these workers to handle. This surely will have a negative impact on customs and other jobs related to the importation of American Lobster.

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[110] American Lobster Risk Assessment, *supra* note 49, at 37.

[111] *Id.* at 88.

[112] *Id.* at 36-8.

[113] This estimation is calculated by dividing the total number of metric tons of American Lobster imported into Sweden in 2014 (300) by the assessment's lowest estimation of jobs effected by the ban of American Lobsters in Sweden (30).

[114] American Lobster Risk Assessment, *supra* note 49, at 36-8.

The assessment's estimation still does not account for the disruption of jobs that they stated were not directly related to the importation of American Lobsters into the EU; these jobs were mainly in markets, restaurants, and event planning. European restaurants sell American Lobsters at a high price, eliminating them from its menus will undoubtedly cause financial hardship for not only the restaurants that sell them to customers, but for the local markets who first get the American Lobster and sell it to the restaurants. The assessment does not say how many potential jobs may be effected by this ban. A 2014 government study stated there were more than 900,000 French jobs involved in the tourism industry and seventy-two percent of these jobs are in the restaurant and catering industry.[115] This works out to about 648,000 French jobs in the restaurant and catering industry.[116] If French restaurants cannot sell a high priced item, such as American Lobster, and the European Lobster cannot make up for the demand of lobster, restaurants may not have another high priced item to replace the American Lobster. This likely would lead to some disturbance to the 648,000 French restaurant and catering jobs. While, certainly, a great portion of these jobs will not be lost due the American Lobster being banned, it is a very likely possibility that waiters in seafood restaurants may experience a decrease in hours or even a loss of job due to the restaurant making less profit. The restaurant may not be able to hire more waiters because of the decreased revenue coming in due to the American Lobster ban. An American Lobster ban in France will cause economic hardship for restaurants and related businesses in France.

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[115] European Commission, *Tourism Industry Sub-Sectors County Report France*, 4 (Mar. 2014), available at https://perma.cc/4FWE-X9Q6.

[116] This figure was calculated by finding seventy-two percent of 900,000.

The tradeoff of decreased economic activity and loss of jobs for a ban of a species that have not been found in France's waters for over a decade is not one the political and business leaders of France should accept. France would not be the only country effected by a ban of American Lobsters. Spain imported more than 2,500 metric tons of American Lobsters in 2014.[117] The assessment did not list a single instance of an American Lobster found off the coast of Spain, despite the great volume of imported American Lobsters.[118] Spain could easily have the same economic hardships France would experience with a ban of American Lobsters. So would several other EU states that would be bound to a ban.[119]

The inclusion of the American Lobster fails the criterion in Article 4(3)(d) because the risk assessment demonstrated a concerted action at Union level is not required to prevent the introduction, establishment or spread of the species.[120] The American Lobster has only been sporadically found in some parts where the assessment claims it can establish, and in other parts it has not been found at all.[121] Conversely, a ban of the American Lobster has the potential to negatively influence the economics and jobs of several European nations. For these reasons, the

[117] American Lobster Risk Assessment, *supra* note 49, at 36-8.

[118] *See id.* at 30.

[119] In 2014, France, Germany, Great Britain, Italy, the Netherlands, and Spain imported more American Lobsters than Sweden imported that year. Including Sweden, almost a quarter of the 28 members that make up the EU imported 300 more metric tons of American Lobster into its country. *Id*. at 36-8.

[120] *See* Invasive Alien Species Act, *supra* note 6, art. 4(3)(d) at 42.

[121] American Lobster Risk Assessment, *supra* note 49, at 30.

American Lobster does not meet the standard found in Article 4(3)(d) of the Alien Invasive Species Act.

5. Article 4(3)(e)

Finally, the American Lobster does not meets the fifth criterion of the Invasive Alien Species Act because, even though banning the American Lobster from being anywhere in the EU will prevent any adverse impact it has in the EU, no matter how small that impact is on the EU, this is not an *effective* way to prevent any adverse impact. This subsection of the law states a species will only be added to the law if "it is likely that the inclusion on the Union list will *effectively* prevent, minimi[z]e or mitigate their adverse impact."[122] It is quite easy to prevent, minimize or mitigate a species' adverse impact if it is placed on the list of Union concern. As noted before, when a species is added to the list of Union concern, there are restrictions placed on the species.[123] These restrictions include a prohibition of import into the EU or between EU nations and a prohibition of sale in the EU market.[124]

This method, however, is not an effective method to prevent, minimize, or mitigate the American Lobster's adverse impact in the EU. As noted before, there is serious doubt the American Lobster caused much adverse impact in the EU. Regardless, placing the American Lobster on the list of Union concern is an ineffective solution because it solves an issue that only one or two EU nations are pursing, while penalizing the entire EU body of nations by banning the American Lobster from its borders. As previously stated, several of the EU nations could

[122] Invasive Alien Species Act, *supra* note 6, art. 4(3)(e) at 42 (emphasis added).

[123] *Id.* art. 7 at 44.

[124] *Id.* art. 7(1)(a),(e) at 42.

potentially lose the value from importing American Lobsters into their countries. This is ineffective because hurts the twenty-seven other EU member states for the purpose of helping one country, Sweden, with an issue that can be better resolved at the national level. If Sweden wants to prevent, minimize, or mitigate the adverse impact of the American Lobster within its borders, it still has recourse with another part of the Invasive Alien Species Act that allows EU nations to establish "more stringent national rules with the aim of preventing the introduction, establishment and spread of invasive alien species."[125] Sweden may enact its own laws prohibiting American Lobster importation into its borders without forcing the other EU nations to follow a similar prohibition.

The American Lobster fails the fifth element of the Invasive Alien Species Act because adding the American Lobster on the list of Union concern does not effectively prevent, minimize or mitigate its adverse impact in the EU. This is because the negatives for a ban of the species in the EU far outweigh the positives, and Sweden has the authority to combat its issue at the national level. After a full analysis of the American Lobster within the Invasive Alien Species Act, the species satisfies the criterium of two out of the five elements of Article 4(3) but fails to satisfy the criterium of three out of the five elements of Article 4(3). As a result, the American Lobster should not be on the list of Union concern. The EU correctly declined to add the species to the list of Union concern. However, the EU should had gone through the full Article 4(3) analysis and not simply rejected the proposal due to political pressure. Though the EU ultimately made the right decision by not adding the American Lobster to the list of Union concern, it should have gone through the whole Article 4(3) analysis as required by the law. By not

[125] *Id.* art. 23 at 52.

following the correct procedures, the EU undermines the law's credibility to restrict invasive alien species from the EU. As will be demonstrated further, this is not the only instance where the legitimacy of the Commission's recommendation of species onto the list of Union concern is called into question.

V. The Invasive Alien Species Applied to Other Species

The American Lobster was not included on the invasive alien list of Union concern, not because it did not meet the criteria in Article 4(3), but because of immense political pressure created by Southern European States to exclude the species from the list. As previously noted, the American Lobster's inclusion onto the list of Union concern would not have occurred because the species, at best, satisfied only two of the five criterion of the law. However, if there was not a huge political resistance for the American Lobster, could the species have been added to the list of Union concern without meeting the criteria in Article 4(3)? Could this also mean other species currently on the list were improperly added to the list of Union concern by not meeting the criteria in Article 4(3)? Could a single nation, such as Sweden, push a species through the Alien Invasive Species Act without an adequate basis for the inclusion? Two species previously mentioned, the Pond Slider and the Virile Crayfish, offer some insight into this question.

A. Pond Slider

As noted earlier, the EU added the Pond Slider to the original list of Union concern on July 13, 2016.[126] For this to occur, the Pond Slider must have met the criteria in Article 4(3) of

[126] List of Union Concern, *supra* note 13, annex at 6.

the Invasive Alien Species Act.[127] As discussed further, it seems the EU made the correct decision by adding the Pond Slider to the list of Union concern because the Pond Slider did meet the criteria as detailed in Article 4(3).

The risk assessment for the Pond Slider was created by the Spanish Ministry of Agriculture, Food and Environment and focused the risk assessment on Southern and Mediterranean EU states.[128] The Pond Slider met the criterion under Article 4(3)[129] of the Invasive Alien Species Act because the species is native to the southern part of the United States and parts of Mexico.[130] The Pond Slider is not native to any EU countries.

The Pond Slider met the second criterium under Article 4(3) of the Invasive Alien Species Act.[131] The risk assessment described the Pond Slider as "the traditional pet turtle" for consumers, which is its main pathway for establishment into EU states.[132] Consumers buy the Pond Slider as a pet and when the consumer does not want to own the Pond Slider anymore, it

[127] *Id.* at preamble (1).

[128] Pond Slider Risk Assessment, *supra* note 26, at 1.

[129] To recall, the first criterion under Article 4(3) is the species must be alien to the European Union. Invasive Alien Species Act, *supra* note 6, art. 4(3)(a) at 42.

[130] Pond Slider Risk Assessment, *supra* note 26, at 8.

[131] This criterion for this section is that there must be scientific evidence the species can establish a viable population and spread into a biogeographical region shared by two or more EU states or a marine sub region. Invasive Alien Species Act, *supra* note 6, art. 4(3)(b) at 42.

[132] Pond Slider Risk Assessment, *supra* note 26, at 14.

deliberately releases the species into wild.[133] The majority of consumers who release their Pond Slider's into the wild release them into freshwater ponds and streams which are often close to urban areas.[134]

Once the Pond Slider reaches freshwaters in urban areas, it can easily establish a viable population because of the pollution in the water sources have an abundance of organic residues and food items, such like the Red-eared Slider did in Brazilian freshwaters.[135] As a result of consumers deliberately releasing the Pond Sliders into urban waters, several EU nations have seen populations of Pond Sliders establish within their boarders.[136] Because of the likelihood consumers will dispose of unwanted Pond Sliders into urban freshwaters, and the abundance of food in the freshwaters for the Pond Sliders, as well as the documented sightings of Pond Sliders in numerous EU countries, there is enough scientific evidence the Pond Slider can establish a viable population and spread into a biogeographical region shared by two or more EU states or a marine sub region. This satisfies the criterion of Art 4(3)(b) of the Invasive Alien Species Act.

[133] *Id*. at 15.

[134] *Id*. at 46.

[135] *Id*.

[136] The European Union countries that have documented the Pond Slider within their borders are: France, Germany, Greece, Italy, the Netherlands, Spain, Portugal, Slovenia, Hungary, Poland, Latvia, and Slovakia. *Id.* at 3.

Further, the Pond Slider also satisfies the third criterion of Article 4(3).[137] From the risk assessment, the Pond Slider can outcompete with the native European Pond Turtle (Emys orbicularis) for habitat and food, causing negative growth for the European Pond Turtle.[138] There is also a concern about the Pond Slider passing along parasites to native turtles.[139] The assessment noted the larger issue of releasing exotic pet turtles into a non-native habitat causes parasite transfers to many native species in that habitat.[140] Pond Sliders released near Paris, France were shown to wreak havoc on the local biodiversity by consuming a great deal of aquatic animals and plants.[141]

Moreover, the Pond Slider also could potentially harm humans because, as a reptile, Pond Sliders are reservoirs for Salmonella and could transfer the Salmonella to humans though contact.[142] The assessment further went to state the Pond Slider was dangerous as a pet for children due to the species' ability to carry pathogens that can be spread to children.[143] Because the Pond Slider has an adverse impact on the biodiversity and ecosystems of EU nations by

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[137] As mentioned before, Art. 4(3)(c) involves whether the species will have an adverse impact on the biodiversity and ecosystems of EU nations, as well as an impact on human health or the economy. Invasive Alien Species Act, *supra* note 6, art. 4(3)(c) at 42.

[138] Pond Slider Risk Assessment, *supra* note 26, at 22.

[139] *Id.* at 37.

[140] *Id.* at 43.

[141] *Id.* at 39.

[142] *Id.* at 42.

[143] *Id.*

outcompeting with native turtle populations and destroying local flora and fauna, as well as posing a risk to humans as a host to pathogens, the Pond Slider met the criterium in Article 4(3)(c).

Continuing, the Pond Slider met the fourth criterion of Article 4(3).[144] From the risk assessment, the EU previously banned the Red Ear Slider (T. scripta elegans) over similar concerns involving consumers releasing the Red Ear Slider into freshwaters and having them cause damage to the environment.[145] This has led to an increase of Pond Sliders imported into the EU.[146] The abundance of Pond Sliders has greatly increased in the EU, especially in Mediterranean countries.[147] Over 23,000 exotic tortoises have been caught in Spain and Portugal alone.[148]

A "concerted action at Union level" is needed to prevent the establishment, reproduction, or spread of the of Pond Slider because, unlike with the American Lobster, there is documentation of the Pond Slider overtaking freshwater streams in Mediterranean countries, as opposed to the scant evidence of American Lobsters overtaking sea waters off the coast of Northern European countries. Moreover, while both the American Lobster and the Pond Slider

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[144] This part of the law requires that a "concerted action at Union level" is needed to prevent the establishment, reproduction, or spread of a species. Invasive Alien Species Act, *supra* note 6, art. 4(3)(d) at 42.

[145] Pond Slider Risk Assessment, *supra* note 26, at 29.

[146] *Id*.

[147] *Id.* at 31.

[148] *Id*. at 36.

are imported into the EU as a consumer good, their use as a commodity are vastly different from one another. While the American Lobster is imported into the EU for food and the vast majority of the species brought in will be eaten by the consumers, the Pond Slider is imported into the EU for recreational purposes as a pet. This means Pond Sliders imported into the EU will be alive a lot longer than American Lobsters imported into the EU. A Pond Slider has an average life span of twenty years.[149] It is very realistic that consumers buy a baby Pond Slider, realize they do not want the Pond Slider after a year, release it in a freshwater source, and the Pond Slider lives another fifteen or so years in the habitat. If several owners of Pond Sliders release their pet into the same freshwater source, there is a great chance these transplanted Pond Sliders will reproduce and create a viable population in the freshwater source. The the only way for the EU to prevent this from happening is a Union wide prohibition of importing Pond Sliders.

Finally, the Pond Slider meets the criterium of the last part of Article 4(3).[150] The Pond Slider is a popular pet for many Europeans which means there is a great chance for pet owners to dispose of their unwanted pets into freshwater sources. By putting the Pond Slider on the list of Union concern, it will prevent consumers from buying the species as a pet and disposing of their pet in freshwater sources when the consumer becomes dissatisfied with their pet.[151] The only way for the EU to mitigate and minimize the damage caused by the Pond Slider is to ban its

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[149] *Trachemys scripta*, IUCN, https://perma.cc/EML4-PYEX. (last visited Apr. 18, 2017).

[150] The final part of Art. 4(3) requires that if the species is included on the Union list, it will mitigate or minimize the species' adverse impact in the EU. Invasive Alien Species Act, *supra* note 6, art. 4(3)(e) at 42.

[151] *See Id.* art. 7(1)(e) at 44. This prohibits any species on the list of Union concern from being placed in any EU market for consumption.

importation and sale into to EU; otherwise, consumers will continue to buy Pond Sliders for pets and releasing them into freshwater streams. This will lead to more environmental issues caused by the Pond Slider in the EU. This is opposed to the American Lobster where the consumers of American Lobsters bought the species for food, and not for recreation. There need not be a Union effort to minimize or mitigate the environmental damage of the American Lobster when the American Lobster is not placed in the environment to begin with. Because the inclusion of the Pond Slider on the list of Union concern will mitigate or minimize its adverse impact on the EU due to it not being sold as a pet and consequentially released into freshwater sources, the Pond Slider satisfies the final criterion of art. 4(3).

B. Virile Crayfish

Through this analysis, it is evident the EU correctly applied Article 4(3)'s criterion when it added the Pond Slider to the list of Union concern. However, this cannot be said for another species on the list, the Virile Crayfish. As stated before, for a species to be added on the list of Union concern, it must satisfy *all* of the criteria in Art. 4(3).[152] The Virile Crayfish, however, does not meet all criteria in Art. 4(3) and yet is on the list of Union concern.

To begin the Virile Crayfish's Article 4(3) assessment, the first issue is to determine if the species is alien to the EU. The Virile Crayfish is not native to the EU; the species is native to the United States.[153] This means that Art. 4(3)(a) of the Invasive Alien Species Act is satisfied

[152] *Id.* art. 4(3) at 42.

[153] CTR. AGRIC. & BIOSCI., *supra* note 17.

because the Virile Crayfish is "alien to the territory of the Union."[154]

The inclusion for the Virile Crayfish on the list of Union concern becomes tenuous when art. 4(3)(b) is applied.[155] From the risk assessment, the Virile Crayfish has established in only the countries of Great Britain and the Netherlands.[156] Although the species established in two countries, the spread of the Virile Crayfish within the countries is not concrete. While the Virile Crayfish in the Netherlands began spreading, starting in 2006, the species in Great Britain is established only in the body of water called the River Lee.[157] Though the species has not actually spread in Great Britain, the assessment states the dispersal rate of the Virile Crayfish in Great Britain is similar to the dispersal rate of the Virile Crayfish in the Netherlands.[158]

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[154] Invasive Alien Species Act, *supra* note 6, art. 4(3)(a) at 42.

[155] Art. 4(3)(b) states there must be scientific evidence the species can establish a viable population and spread into a biogeographical region shared by two or more EU states or a marine subregion. *Id.* art. 4(3)(b) at 42.

[156] Virile Crayfish Risk Assessment, *supra* note 19, at § 33. This may have to be reevaluated if Great Britain, does indeed, leave the European Union through Brexit, in 2019. Alex Hunt & Brian Wheeler, *Brexit: All you need to know about the UK leaving the EU*, BBC NEWS (Mar. 30, 2017), available at https://perma.cc/M2UQ-U686, it may make it impossible for the Virile Crayfish to satisfy Article 4(3)(b) because the only country within the EU where the Virile Crayfish is located is the Netherlands. Species that are added to the list of Union concern, but subsequently do not meet all requirements of Article 4(3) may be removed from the list of Union concern through a "comprehensive review" by the Commission. Invasive Alien Species Act, *supra* note 6, art. 4(2)(b) at 42.

[157] Virile Crayfish Risk Assessment, *supra* note 19, at § 33.

[158] *Id.* at § 44.

While there is actual evidence the Virile Crayfish established in two or more EU states, the scientific evidence the species can spread into Great Britain is based on the notion the waters in Great Britain are similar to the ideal waters Virile Crayfish have in their habitat.[159] This is not definitive evidence, as compared to the Pond Slider where that species had established and spread in several EU countries.[160] As the goal of this legislation is to combat invasive species on an EU scale, adding species that are only present in two of the twenty-eight EU countries does not seem to complete that goal.

Now, if there was evidence the Virile Crayfish were popular in the EU, such as the Pond Slider, or even the American Lobster, then EU action may be warranted. However, from the risk assessment, the Virile Crayfish does not have much popularity in the EU; there is no crayfish export market in the EU for food consumption.[161] The pathway the Virile Crayfish had into Great Britain, scientists believe, came from an aquarium enthusiast whom disposed of his aquarium into the River Lee.[162] This is important when it comes to Art. 3(4)(d) of the Invasive Alien Species Act[163] for this cross-references what attributes should be given weight in the risk assessment.[164] This includes "a description of the potential pathways of introduction and spread

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[159] *Id.* at §§ 50, 54.

[160] Pond Slider Risk Assessment, *supra* note 26, at 30.

[161] Virile Crayfish Risk Assessment, *supra* note 19, at § 30.

[162] *Id.*

[163] This part of the Act describes how a risk assessment is needed to determine if any action is needed at the Union level. Invasive Alien Species Act, *supra* note 6, art. 4(3)(d) at 42.

[164] *See id*. art. 5(1) at 43.

of the species, both intentional and unintentional, including where relevant the commodities with which the species is generally associated."[165] The assessment stated there were "very few" pathways for the Virile Crayfish into the EU.[166] The assessment listed the only pathways into Great Britain as through the aquarium trade and through the food market.[167] However, the assessment admitted virtually no Virile Crayfish are sold in Great Britain in the food market, and the aquarium trade has only led to the sole incident of Virile Crayfish entering Great Britain's waters.[168] There are no other pathways into Great Britain, such as being used as bait for fishing.[169] This pales in comparison to the American Lobster, or even the Pond Slider, for the volume of the species being brought into the Great Britain or the EU.[170]

While both the Pond Slider and the Virile Crayfish are similar commodities, as both are bought and sold for recreational purposes, the Pond Slider is much more prevalent within the EU than the Virile Crayfish.[171] The EU placed the Pond Slider on the list of Union concern because

[165] *Id.* art. 5(1)(c) at 43.

[166] Virile Crayfish Risk Assessment, *supra* note 19, at § 20.

[167] *Id.* at § 21.

[168] *Id.*

[169] *Id.*

[170] To recall, Great Britain imported over 750 metric tons of American Lobster into its boarders in 2014. American Lobster Risk Assessment, *supra* note 49, at 37.

[171] To recall, the risk assessment for the Pond Slider described the species as the "traditional pet turtle" in the EU consumer market. Pond Slider Risk Assessment, *supra* note 26, at 14. This is a stark difference to

several counties dealt with the aftermath of their citizens releasing scores of Pond Sliders into their waterways. The Virile Crayfish, however, did not have an EU-wide import influx as the Pond Slider did. While the prevalence of the species within an area does not solely determine whether a species is invasive, it is definitely a factor in ultimately determining if the species is invasive.

This begs the question of whether a country should be advocating for EU legislation for an issue that rarely occurs in the country to begin with? It was already illegal in Great Britain for the aquarium enthusiast to keep and dispose of Virile Crayfish when he disposed of his batch in the River Lee.[172] Similar to Sweden's issues with American Lobster's in its oceans, it may be in the best interests of Great Britain and the EU for the EU to tackle this issue at the national level, which Great Britain is permitted to do.[173]

Moreover, even if the limited pathways of the Virile Crayfish into Great Britain alone is not enough to question an EU need to declare the Virile Crayfish an invasive species, the species actual adverse environmental impact in the River Lee is suspect.[174] The assessment describes the adverse effect the Virile Crayfish has on the River Lee is "minimal" and it further states there is

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the Virile Crayfish which had little success in the food market in Great Britain when marketed. Virile Crayfish Risk Assessment, *supra* note 19, at § 21.

[172] Virile Crayfish Risk Assessment, *supra* note 19, at § 23.

[173] *See* Invasive Alien Species Act, *supra* note 6, art. 23 at 52.

[174] Another aspect of the risk assessment is for the assessment to describe the adverse effect the species has on native species, habitats, human health and the economy, including any potential future adverse effects. *Id.* art. 5(1)(f) at 43.

"no recorded environmental harm in the river Lee system."[175] However, the assessment does estimate the species may cause harm in the future by outcompeting with native crayfish and eating native organisms, and it may have an effect on the littoral zone in the river.[176] This is the only estimated evidence of any adverse effect because the assessment goes on further to state the Virile Crayfish does not cause any social or health harm to humans.[177] Nor does the Virile Crayfish cause any negative economic damage in Great Britain.[178]

Finally, Art. 4(3)(e) falls within itself because adding the Virile Crayfish on the list of Union concern cannot prevent, minimize, or mitigate the adverse impact of the species when the adverse impact is either negligible or non-existent, as according to the risk assessment.[179] Much like the American Lobster, when the species does not have an adverse impact on the environment, it makes no sense to add the species on a list designed for invasive species that harm the EU. Placing the Virile Crayfish on the list of Union concern is not an effective way to prevent, minimize, or mitigate the species' adverse impact on the environment because other EU nations will have to put in place procedures to restrict the movement of a species that has little chance of entering into its borders.[180] With such a low number of pathways the Virile Crayfish can enter into in an EU state, forcing all the EU states to implement procedures to combat the

[175] Virile Crayfish Risk Assessment, *supra* note 19, at § 62.

[176] *Id* at § 63.

[177] *Id.* at § 64.

[178] *Id.* at § 61.

[179] Invasive Alien Species Act, *supra* note 6, art. 4(3)(e) at 42.

[180] *Id.* art. 7(2) at 44.

species is not an effective way to prevent, minimize, or mitigate the species' adverse impact on the environment, especially since the law allows for individual EU states to place restrictions that are more restrictive than what the EU places on the species.[181] Forcing EU states to implement restrictions on the Virile Crayfish, when many of the EU states have no Virile Crayfish issues, at the behest of two countries, is not an effective way to prevent, minimize, or mitigate the Virile Crayfish's adverse impact on the environment.

After the conclusion of the Virile Crayfish's Article 4(3) assessment, the results should give pause as to how the species was added to the list of Union concern when the species arguably failed three out of the five criterions in Article 4(3). Article 4(3)(b) is tenuous because the Virile Crayfish has not spread outside of the River Lee in Great Britain since its introduction to the river. Article 4(3)(d) is also difficult for the Virile Crayfish to satisfy because of the lack of evidence that demonstrates a Union effort is needed to prevent the introduction, establishment, or spread of a species that is confined to the Netherlands and a river in Great Britain. Finally, it is not an effective way to prevent, minimize, or mitigate the Virile Crayfish's adverse impact on the environment, under Article 4(3)(e), to force all the EU states to implement procedures to restrict the Virile Crayfish, when the Virile Crayfish only negatively impacts two EU nations. Taken together, these deficiencies with satisfying the criteria of Art. 4(3) call into question the validity of adding the Virile Crayfish onto the list of Union concern. While Great Britain has the right to introduce species for admission to the list of Union concern,[182] species must only be

[181] *Id.* art. 23 at 52.

[182] *See id.* art. 4(4) at 42.

included if they meet *all* five requirements of Art. 4(3) of the Invasive Alien Species Act. The Virile Crayfish does not meet this requirement.

VI. CONCLUSION

Invasive species can have an extremely detrimental effect on a nation's environment and economy. The EU attempted to rectify this issue by creating the Invasive Alien Species Act as a way to heavily regulate the movement of some of the worst invasive species in the world. The Act created a comprehensive framework for the Commission to analyze and determine whether a particular alien species is invasive. This framework included five criterion, based on scientific evidence, for the Commission to make their decision on whether to place a species on the list of Union concern. The Act required the species meet all five criterion for it to be placed on the list of Union concern. This threshold that the species must meet all five criterion to be placed on the list of Union concern is high, but is necessary because once a species is placed on the list, the Act severely restricts the movement and sale of the species.

The Act is an effective process for the EU to combat invasive species at the Union level, and if a species does not meet the high threshold in the Act, individual states in the EU may impose their own restrictions on the species. The Act is a comprehensive process for the EU to combat its invasive alien species issues, while recognizing that some alien species should be combated at a national level and not a Union level. As shown, the Pond Slider is an invasive species that can only be combated at a Union level due to its immense popularity within all of the EU, and its capability to cause severe environmental damage to several of the EU states. Without the Invasive Alien Species Act, individual EU states would be powerless to stop the Pond Slider because other EU states may not restrict its importation into the EU; the Pond Slider would be able to establish in one EU state and spread into another EU state.

However, some EU states used this law to restrict species at an EU level that, under the Act, should not be put on the list of Union concern. While an EU state may petition the Commission to add any species onto the list of Union concern, the Commission must only add species that meet all five requirements of Article 4(3). The Commission must reject any proposals when the species does not meet all five requirements of Article 4(3). Whether the state was successful, such as Great Britain and the Virile Crayfish, or unsuccessful, such as Sweden and the American Lobster, the policy behind the law should be that invasive, EU wide species are the only species placed on the list and not invasive species just on a national level.

When the EU adds species to the list of Union concern that should not have been added, it places burdens on the EU states to restrict the movement, sale, and use of these species, for the benefit of one EU state. As shown with what could have happened if the American Lobster were added to the list of Union concern, several EU states would have lost money and jobs through the restrictions placed on the species. Even a species like the Virile Crayfish being placed on the list of Union concern, a species that is not popular or desired in any of the EU states, when it does not meet all five requirements of Article 4(3) undermines the goal of the Act. The goal of the Act is to combat invasive alien species that effect the entire EU. Adding species contrary to the goal of the Act undermines the legitimacy of the Act and dissuades individual EU states from following the Act. For the sake of the EU environment, the EU must ensure that it will only add species that rightfully belong on the list of Union concern.